

Fire Department Efficiency:
How efficient are we and how do we know?

Financial Management

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An applied research project submitted to the National
Fire Academy as part of the Executive
Fire Officer Program

February 1999

ABSTRACT

The problem this research study addresses is the line-item budget does not answer questions raised by local officials as to the efficiency of the Muscatine Fire Department. The purpose of this research is to evaluate alternative methods of budgeting, measure efficiency, identify any established measurement standards, and then benchmark those measurements of efficiency with other fire departments similar in size to Muscatine's.

This study utilized evaluative research supported by historical and descriptive research to answer the following questions:

- * What type of budget best measures the efficiency of a fire department?
- * Is there a current standardized method of measuring fire department efficiency that can be applied to the Muscatine Fire Department?
- * How would the local elected officials and city administrator define and measure fire department efficiency?
- * How does the Muscatine Fire Department's efficiency compare or benchmark to other fire departments serving communities in comparable size to Muscatine's?

Historical research was used to obtain information pertaining to this problem. The study also included descriptive research through the use of the survey instrument.

The results of this research identified the type of budget that best measures efficiency, methods of measurement of efficiency that had previously been introduced and that could be applied, and benchmarking these findings with other area fire departments.

This research recommends the fire service adopt a national form of measuring fire department efficiency and educating the fire service and the general public to its benefits and purpose.

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INTRODUCTION

The City of Muscatine currently uses the line-item budget for tracking annual allocations and expenditures. All city departments, including the Muscatine Fire Department, utilizes this form of budget. The City of Muscatine has never used any other form of budget during this century (David Casstevens, personal interview, March 26, 1999). Questions have been asked by one city council member as to the efficiency of the fire department. Although the line-item budget performs well in tracking the fire department's expenditures and allocations, it does not measure its efficiency.

The problem is that the line-item budget does not answer questions raised by local officials as to the efficiency of the Muscatine Fire Department. This research paper utilizes the National Fire Academy's *Fire Service Financial Management* course to assist in finding the answer to this problem.

The purpose of this research is to evaluate the alternative methods of budgeting, measure efficiency, identify any established measurement standards, and then benchmark those measurements of efficiency with other fire departments similar in size to Muscatine's.

The use of evaluative research methodology supported by

historical and descriptive research methods were utilized by the author to answer the following questions:

1. What type of budget best measures the efficiency of a fire department?
2. Is there a current standardized method of measuring fire department efficiency that can be applied to the Muscatine Fire Department?
3. How would the local elected officials and city administrator define and measure fire department efficiency?
4. How does the Muscatine Fire Department's efficiency compare or benchmark to other fire departments serving communities in comparable size to Muscatine's?

BACKGROUND AND SIGNIFICANCE

How does one define "efficiency"? According to *Webster's New World Dictionary* (1984), efficiency is defined as

1. ability to produce a desired effect, product, etc., with a minimum of effort, expense, or waste; quality or fact of being efficient
2. the ratio of

effective work to the energy expended in producing it, as of a machine; output divided by input. (p.445)

Taxpayers are demanding a more accountable, efficient, and results-oriented government. The general public's perception is that tax dollars are being wasted or spent unnecessarily (Fischer, 1994). In many communities, the taxpayers are either uninformed as to what the local government does, disapprove of the way they are doing it, or believe the local government's management is inept and wasteful (Bland & Rubin, 1997).

Walter (1994) cites the benchmarking craze: "Governments that used to pay no attention to their own performance now seem obsessed with trying to measure everything in sight" (p. 33). Many citizens have come to expect their government to function more as a business.

Interest in government performance has begun to move from what goes into government programs to what come out.

Citizens and government officials are concerned not only about the amount of spending but about whether government programs are achieving intended results at a reasonable cost. (Tracy & Jean, 1993, p. 11)

Critics argue that competition forces an inefficient

enterprise either out of business or into bankruptcy. However, there is no comparable means of weeding out inefficiency in government (Bland & Rubin, 1997).

Although the fire service has been somewhat immune to competition, the idea of privatization coupled with fiscal restraints have put pressure on today's fire departments to become more efficient and cost effective. Today's citizens have come to expect their fire department to extinguish their fires, prevent them from occurring through public education and inspections, and to deliver emergency services when the prevention efforts fail (Gay, 1993).

The City of Muscatine, Iowa, has an estimated population in 1994 of 23,935 (Solt, 1995). In 1995, the State of Iowa Legislature voted to phase out, over a ten-year period, the Machinery and Equipment Tax (Special Tax Provision Act, 1995).

According to David Casstevens, City of Muscatine Finance Director, this would amount to about \$750,000 of lost revenue.

This loss of revenue would have a profound impact on the city's local budget (personal interview, March 26, 1999).

The budget process in Muscatine begins in October. By February, the city council begins having in-depth budget meetings. The following month there is a public hearing to

approve and adopt the next fiscal year's budget. According to David Casstevens, these meetings are fairly well attended by the citizens of Muscatine.

Mr. Casstevens states that one of the primary concerns of the City Council is the efficiency of each city department. He also stated that he anticipates the city council will begin utilizing some form of measurement of efficiency in future budgets (David Casstevens, personal interview, March 26, 1999).

The research problem of defining the efficiency of the Muscatine Fire Department relates directly to the EFO's elective course *Fire Service Financial Management*. The course materials compares different types of budgets and indirectly the course's reference materials imply the importance of efficiency.

LITERATURE REVIEW

By far, the most common and simplest form of budget used by local government is the line-item budget (Jones, 1984). It lists items of purchase and acquisition. The line-item budget came into being during the early 1900s. It replaced the lump-

sum budget and was designed to hold down expenditures (Bland & Rubin, 1997). No other form of budgeting facilitates the control of expenditures as well as the line-item budget. It is very "accounting friendly", practical to implement, and easy to understand by tracking what has been spent and what remains to be spent (FEMA, 1996). In a line-item budget, each city department head expresses their financial needs in terms of inputs-personnel costs, benefits, training, and apparatus maintenance. Line-item budgets usually will compare last year's actual expenditures with the amounts requested for the current year's (Bland & Rubin, 1997).

Although the line-item budget is effective in controlling expenditures, it provides no information in regards to outputs and efficiency (Bland & Rubin, 1997). During the Kennedy administration, the Department of Defense implemented the performance budget (FEMA, 1996). The three features of the performance budget are: (a) standards of performance are set for each organization unit; (b) compliance is measured against those standards; (c) those standards as units of work are divided by the dollars allocated and a unit cost is attained (Coleman & Granito, 1998). Simply put, how many widgets can you make with one dollar? Efficiency can be measured through

units of work and cost per unit (FEMA, 1996). Productivity is the ratio of inputs to outputs. Another advantage of the performance budget is improved accountability (Bland & Rubin, 1997).

Measuring the efficiency of a fire department is difficult to measure (Hatry, et al., 1992). Comparing one fire department with another can be difficult. The fire service has not developed ways or methods to measure its performance and provide the taxpayer the appropriate information needed to make informed judgments about the cost, quality, and level of services they receive (Gay, 1993).

According to Chief Mario Trevino's (1996) EFO Paper, when identifying performance measures for the Seattle Fire Department, the comparing of "response times" can be difficult due to different interpretations and definitions of "response time". Another problem Trevino identified in his paper was the process of performance measurements obtaining a tremendous amount of information that had little meaning and was not used appropriately.

In 1977, the Urban Institute and International City Management Association published the book *How Effective are Your Community Services?* Included was a chapter on measuring the effectiveness and efficiency of a community's fire

protection. Fire protection was broken down between fire suppression and fire prevention (primary fire inspections). To identify testing standards and methods of measurements, nine communities participated in a project under the Urban Institute and National Fire Protection Association and conducted by the National Science Foundation (Hatry, et al., 1977). In 1992, a 2nd Edition of this book was published. According to Harry Hatry (telephone interview, April 6, 1999), there is very little difference between the two editions aside from the inclusion of automatic sprinklers as it relates to fire prevention.

One of the findings of this study was the need for improved measurements of fire service performance. Existing measurements of fire suppression performance (dollar loss and casualty figures) are deemed inadequate. In regards to structure fires, three areas of measurements needed to be obtained: (a) fire size found upon arrival of the fire department and the estimated damage that occurred (estimated in square footage and dollar loss); (b) fire spread after the arrival of the fire department and the estimated fire damage, including damage inflicted by the fire department during fire suppression efforts (also estimated in square footage and dollar loss); and (c) time required to bring the fire under

control (Hatry, et al., 1977).

One of the problems identified was in the reporting of statistics of fire loss and casualties.

Firefighting effectiveness is not adequately quantifiable in terms of dollar loss and casualties, partly because such loss and many casualties occur before arrival of the first unit. A measure more closely tied to fire department actions at the scene is the spread of flame damage after arrival. 'Spread' can be measured in terms of the difference between the area the fire was confined to on arrival and the area it was confined to at extinguishment.

(Hatry, et al., 1977, p. 122)

Having the information of the fire spread after the fire department's arrival could be used to identify effectiveness and efficiency of the suppression forces or in identifying problem areas in certain occupancy types where the evidence may warrant a change in the building code. It could also be utilized to assist in determining the most efficient crew sizes, different suppression techniques, or equipment (Hatry, et al., 1977).

The study done by the nine departments identified fire size upon the arrival of the fire department. The volume of

fire upon the arrival had a strong effect on the amount of time necessary to bring the fire under control. The larger the fire upon arrival, the longer the control time. The following data was collected from about 500 fires: Fires involving 30 sq. ft. took about 1 minute, 500 sq. ft. between 5-10 minutes, and 3,800 sq. ft. between 20-30 minutes (Hatry, et al., 1977). Outputs in units of effectiveness would be divided by the input. Simply put, with X amount of dollars a fire department should be able to control Y amount of fire within a certain amount of time (Hatry, et al, 1977).

In 1996, 29 fire departments participated in obtaining performance data for Section 5: Fire Services Comparative Data for ICMA's *Comparative Performance Measurement: FY 1995 Data Report*. Three major fire service categories were identified: community risk reduction, fire suppression, and emergency services. Indicators provided two types of outcomes -- intermediate (such as average response times) and end (such as the number of civilian deaths in structure fires). Efficiency indicators were defined as the ratio of the amount of output or outcome produced by the service to the amount of input (dollars expended) to produce the output. There was little data produced in this area (Urban Institute & ICMA, 1996). One example of what the fire service has done to enhance its

value to the community has been the incorporation of emergency medical care into the fire department (Gay, 1993).

According to Dr. Harry Hatry, the nearest the data collected for The Urban Institute and ICMA's study comes to the measurement of the amount of fire damage a structure has suffered upon the arrival of the fire department is found in Table 25: "Percent of all Structure Fire Incidents Where Flamespread was Confined to the Room of Origin." Nowhere in the report do any of the reporting fire departments measure damage after the arrival of the fire department or the amount of time required to control the fire (Urban Institute & ICMA, 1996, p. 5-42).

In the area of fire prevention (Hatry, et al.), identifies the need for improved measurements of fire prevention performances. One method of measuring effectiveness of fire

inspections was to consider the number of fires that have occurred in inspected occupancies that were "preventable" fires. If a fire caused by a mechanical defect occurred in an occupancy that had had a fire inspection, it would be useful to know whether the defect was easily identified during an inspection. Over time, this information could indicate the

need for changes in the inspection process. The authors concluded that by recommending communities identify fires in terms of their "relative preventability by inspection". Output in units of workload divided by input would be the number of fire inspections of business occupancies divided by its costs of the inspection services.

The analysts were surprised at one of the findings of the 1995 report in the area of community risk reduction.

We expected to find that jurisdictions that spent more on community risk reduction, specifically inspections for fire hazards and public education, would experience lower numbers of residential structure fires per 1,000 residential structures...The opposite was found to be the case...(Urban Institute & ICMA, 1996, p. 5-8).

By identifying performance measurements known as "benchmarks", a person can identify who is doing a particular task better than all others (Fischer, 1994). Benchmarking can be defined as "A surveyor's mark made on some object of previously determined position and elevation and used as a reference point in tidal observations and surveys" (Gay, 1993, p. 5).

Benchmarking is the comparing of one's own fire department to others. How do we compare to others in delivering a particular program or service? Who is

doing something better than we are? What are they doing that we are not doing? Getting the answers to these questions are the essence in determining what an effective and efficient fire department may be (Fischer, 1994). It allows for service improvements at the best price and will provide the local elected officials with quantitative information about fire department performances (Gay, 1993).

Performance measurements consist of three types: process measurements, effectiveness measurements, and productivity measurements. Process measurements would include the total number of emergency calls during the year and the number of non-emergency services (inspections, public education, etc.) provided during the same time period. Effectiveness measurements gauge the effectiveness of the fire department's goals and objectives. This would include the effectiveness of the fire department during fire suppression activities. Productivity measurements determine the costs. Examples would be cost per emergency call and cost per fire inspection (Gay, 1993).

Performance measurements are included in the International Association of Fire Chiefs Commission on Fire Accreditation. Part of the accreditation includes a self assessment model. Benchmarking is part of the self assessment

process. The self assessment offers some guidelines as to how to conduct benchmarking. One suggestion is to gather data from fire departments of comparable population and size -- comparing apples to apples. Another suggestion was to benchmark with only 3-5 fire departments. One would not be enough and more than 5 would be too many. Consistency is also important (Peterson, 1998).

PROCEDURES

Definitions

FEMA - Federal Emergency Management Agency

ICMA - International City/County Managers Association

IAFC - International Association of Fire Chiefs

CFAI - Commission on Fire Accreditation International

Combination Department - department consisting of career and
paid-volunteer fire fighters

Research Methodology

The goal of this research was to gather all available and applicable information to be used by the Muscatine Fire Department to identify the appropriate budgeting method to measure the efficiency of the Muscatine Fire Department. The

research included historical research in that a literature review was conducted to obtain pertinent private and public business information pertaining to this problem. Information such as articles, books, journals, and previous EFO research papers was obtained at the National Fire Academy's Learning Resource Center and Muscatine's Public Library.

The research also included descriptive research through the use of the survey instrument. Two written surveys were conducted. The first survey was taken directly from Hatry, et al. (1977). It contained seven questions relating to Muscatine Fire Department's performance in regards to "efficiency" (see Appendix A). Question #1 inquired whether their facility had been inspected within the past 12 months. Question #2 asked them to rate the adequacy of the inspection.

Question #3 asked to rate the courtesy of the fire fighters/inspectors. Question #4 inquired whether they believed the inspections improved the fire safety of their establishment. Question #5 inquired whether the fire department had responded to an emergency (and how many times) at their facility within the last 12 months. Question #6 asked them to rate the speed of the fire department's response to their emergency. Question #7 asked them to rate the effectiveness and efficiency of the fire department during the

emergency. Below the seven questions was a place for comments. Numerous comments were obtained in the surveys. A total of 104 surveys were mailed to businesses within the city limits of Muscatine. These businesses were randomly selected from the inspection files. Approximately 15% of the businesses were sent a survey. The inspection files contained approximately 650 files. Every sixth business file was sent a survey. Seventy-five businesses responded to the survey (return rate of over 71%).

The second survey taken contained two essay questions (see Appendix B). The first question asked the surveyed person to define efficiency as it relates to the fire department. The second question asked the surveyed person how they would measure efficiency as it relates to the fire department. This survey was sent to all seven Muscatine City Council members, the Mayor, and the City Administrator.

Descriptive research was also conducted through the use of telephone interviews. Communities from eastern Iowa with similar populations were interviewed. These included all-career and combination fire departments.

Supported by historical and descriptive research, evaluative research was used to define and benchmark fire department efficiency. The purpose of this evaluative

research was to benchmark the efficiency of the Muscatine Fire Department to other similar fire departments in eastern Iowa.

Limitations and Assumptions

Limitations included not knowing if those surveyed were a true representation of all the businesses within the city limits of Muscatine. The surveys given to businesses and locally elected officials were based on the assumption that questions would be answered accurately and truthfully.

Although much has been written on private and public efficiency, there has been little previous research in identifying fire department efficiency. Only one previous EFO research paper has been written directly addressing fire department efficiency.

This research was conducted prior to publishing of the ICMA's *Consortium on Performance Measures*.

No information was obtained as to identifying fire department efficiency during fire suppression. Although a formula was obtained instructing how fire departments could measure fire suppression efficiency, no such information or statistics could be found. Thus, this research is limited to only those sources cited herein.

RESULTS

Answers to Research Questions

Question 1. What type of budget best measures the efficiency of a fire department?

The budget method that best measures efficiency is the Performance Budget. According to the literature review, this form of budget measures units of work and cost per unit by setting standards of performance and then measuring the organization by those standards (Coleman & Granito, 1988; FEMA, 1996).

The city government of Muscatine utilizes the line-item budget. According to City Finance Director David Casstevens, although the city council is very interested in all city departments' (including the fire department) functioning as efficiently as possible, they are not willing to change budgeting methods from line-item budget to a performance budget (personal interview, March 26, 1999).

Question 2. Is there a current standardized method of measuring fire department efficiency that can be applied to the Muscatine Fire Department?

According to the literature review, fire department efficiency can be broken down into three areas: fire

suppression, fire prevention, and total number of services provided each day per company. Currently, there are no national standardized methods of measuring fire departments' efficiency in these three areas. The method of obtaining fire department efficiency for fire suppression and fire prevention was found in Hatry, et al. (1977). The efficiency of each staffed company was found in Gay's (1993) "Benchmarking: Achieving Superior Performance in Fire and Emergency Medical Services."

ICMA's Comparative Performance Measurement Consortium did provide a data collection template. However, this template was designed for fire departments much larger than Muscatine, and did not provide the necessary criteria to measure the three areas identified in the paragraph above.

The Commission on Fire Accreditation International (1999), recommended by the IAFC to the ICMA for the development of a fire accreditation program, does discuss efficiency in its textbook *Fire & Emergency Service Self Assessment Manual*. However, it does not provide a standardized method of measuring a fire department's efficiency in the three areas mentioned above.

Question 3. How would the local elected officials and city administrator define and measure fire department efficiency?

Only two city council persons and the mayor responded to the questionnaire sent to the seven Muscatine city council members, the mayor, and the city administrator. One council person defined efficiency for the fire department as never having to fight a fire. The other council person responded by defining efficiency as getting the most bang for the taxpayer buck. The mayor defined efficiency as producing the most with the least effort, quick response times, and well trained personnel.

Question 4. How does the Muscatine Fire Department's efficiency compare or benchmark to other fire departments serving communities comparable in size to Muscatine's?

William G. Gay (1993), identifies two measures of comparative benchmarking: (a) Fiscal Analysis (per capita cost) - department budget divided by the population of the jurisdiction and services per company, found in Table 1; and (b) Suppression Services - number of services (emergency services and prevention services) divided by the number of staffed suppression companies, found in Table 2. The Gay survey consisted of 12 fire departments. Their suppression

services averaged 1,098 activities annually, or 1.098 activities per staffed company per day. The report also defined the performance objective for suppression companies as providing no fewer than 1,800 services annually or approximately five to six activities daily.

Gay's report also included a number of charts and expands the Fiscal Analysis. He described the budget resources of each department, cost per fire fighter, and cost per call. Table 1. shows the results of the survey applied to comparable fire departments in Eastern Iowa, including Muscatine. Another chart identified the number of emergency and non-emergency services provided by suppression companies. Table 2. shows these results of the survey with the same fire departments.

Mary Peterson (1999), Project Manager for the Commission on Fire Accreditation International recommends using three to five fire departments for benchmarking. "One is not enough and more than five may be too time consuming" (p. 2). Four fire departments from eastern Iowa were used for benchmarking purposes. Each community was similar in population and also in departmental size to Muscatine.

Table 1.

FISCAL ANALYSIS

City Cost call	Total FD Budget	Cost per-capita	Cost per F/F	population per
Clinton \$788	\$3,014,600	\$100	\$65,500	30,000
Bettendorf \$685	\$1,300,000	\$42	*	31,100
Burlington \$949	\$3,100,000	\$110	\$68,888	28,500
Cedar Falls \$1,649	\$1,863,650	\$54	\$56,474	34,300
Muscatine \$1,111	\$1,500,000	\$65	\$46,875	23,500
(Gay's ave.) \$1,411 department)	\$35,621,076 in 1993	\$89	\$63,388 (* - combination fire	

Table 2.

SUPPRESSION SERVICES

City activity	Emerg. calls	Non-emerg. services	Total	Staffed comp.	Daily services average	Cost per
Clinton \$766	3,827	108	3,935	4	2.69	
Bettendorf \$340	1,898	1,915	3,813	5	2.54	
Burlington	3,265	136	3,401	4	2.36	

\$911					
Cedar Falls	1,130	1,565	2,695	2	5.18
\$691					
Muscatine	1,350	1,256	2,606	3	2.83
\$576					
(Gay's ave.)			43,705		1.098
\$886					
in 1993					

DISCUSSION

The concept of the need for governmental efficiency was well documented. According to research available in the Learning Resource Center at the National Fire Academy, the idea of the need for governmental efficiency was also well documented. Taxpayers are demanding a more accountable, efficient, and results-oriented government. According to Muscatine's Finance Director, efficiency in each city department is important to every city council member. He stated that in city budget meetings with the city council, efficiency is the hot topic. Unfortunately, in Muscatine, it appears the only time the city council is concerned about local government efficiency is during its budget meetings. With only three persons out of nine responding to the questionnaire inquiring as to the definition of efficiency and how it should be measured, the third question to this research

paper remains unclear.

The negative perception the general public has of governmental waste and inefficiency has been difficult to overcome. It is especially challenging when identifying the means or methods to measure efficiency of a fire department and then compare it to another fire department. Although the ICMA's Consortium in 1996 did provide comparative data on selected aspects of performance, this study did not include smaller fire departments. Although the Consortium did provide a tremendous amount of information, no national standard for the measurement of efficiency was developed (Urban Institute & ICMA, 1996).

An obvious question of how efficient a particular fire department is when it comes to fire suppression is usually not answered. The fire service tends to destroy its mistakes. If the fire service were to obtain the information identified in Hatry, et al. (1977), which defines fire suppression efficiency, then useful information could be gathered and applied. Determining the efficiency of fire suppression efforts would result in each incident receiving a grade or rating, not something many incident commanders may enthusiastically endorse.

One of the "hottest topics" discussed within the fire

service is how many fire fighters should be staffed on an engine or truck company. If the fire service had been obtaining the statistics and information Hatry, et al. (1977) identified over the past 22 years, the suppression efficiency in regards to staffing levels of engine or truck companies could have been defined.

The literature review also identified the need for measuring the efficiency of fire prevention efforts. One method of measurement suggested was through the use the survey instrument (Hatry, et al. 1977). The survey (questionnaire) sent to the businesses in Muscatine had surprising results. The fire fighters who conduct the inspections were very apprehensive of sending this particular survey to the businesses. They anticipated numerous negative comments and the general belief the fire inspections were a waste of taxpayers' money. The results of the survey were quite different. Almost 90% rated the adequacy of the fire inspections as adequate and about 75% believed the fire inspections helped improve fire safety. Another surprising result was the percentage of businesses (21%) that had had an emergency within the last year. Of those 21% who had had an emergency, 87% rated the effectiveness and efficiency of the fire department as excellent. The remaining 13% rated it as

good. Although there were a couple of negative comments, the majority had positive things to say. As Dr. Hall stated to the author, "Positive results of the survey are reassuring information; negative results are useful information" (Dr. John Hall, telephone interview, April 6, 1999)

Another organizational implication of this research is found in the results of the benchmarking of the other fire departments. When compared to the other fire departments, Muscatine Fire Department did not attain the benchmark of 5-6 activities per day. Although the Muscatine Fire Department's "C Shift" (commonly referred to as the Red Shift or Inspection Shift) did average over 5 activities per day, the overall average of the Muscatine Fire Department was 2.83. Cedar Falls Fire Department had the best average and did reach the benchmark with an average of 5.18 activities per day.

RECOMMENDATIONS

In examining the problem of defining and measuring the Muscatine Fire Department's efficiency while utilizing a line-item budget, the answer is it can't. Clearly, the line-item budget does not perform this function. However, defining and measuring the Muscatine Fire Department's efficiency can be done while still utilizing the line-item budget. Benchmarking

can be used as a tool to measure efficiency of any fire department. The following recommendations are two-fold. They address the issue both externally and internally in regards to the Muscatine Fire Department.

Recommendation 1. The ICMA and the United States Fire Administration should provide a standardized method of defining and measuring fire department efficiency. ICMA's Performance Measures Consortium did not go far enough. A method of measuring efficiency must be available to every community and its fire department.

Recommendation 2. A formula for defining and measuring a fire department's efficiency during fire suppression efforts was first introduced in 1977. The United States Fire Administration should review this formula for its accuracy and application to today's fire service. Once the formula has been established, it must be introduced into the fire service.

The National Fire Incident Reporting System (NFIRS) would be the most logical system for gathering this information. The National Fire Academy must also teach its fire officers how to obtain this necessary information.

Recommendation 3. The Muscatine Fire Department can do more

in regards to providing additional non-emergency services. The "B Shift", or "Blue Shift" as it is referred to in Muscatine, functions as the operations shift. However, one of the engine companies could develop pre-plans on behalf of the fire department. One of the companies from the "A Shift" ("Green Shift" in Muscatine) could also start developing pre-plans.

An alternative to this recommendation would be incorporating the Muscatine Fire Department into the Building Official's Rental Housing Program. By having companies from the other two shifts participating in Rental Housing and code enforcement, public education services could be provided to a greater range of citizens.

Recommendation 4. The Muscatine Fire Department must educate its citizens -- in particular its city council, mayor, and city administrator -- that there are currently no easy answers when it comes to the issue of efficiency. Once an accepted standardized method of defining and measuring fire department efficiency has been introduced, the public and elected officials need to be educated as to how the process can benefit all citizens. Once these performance measurements have been obtained, continuous benchmarking with other similar

departments should take place. The result should be, as one council person stated, "the most bang for the taxpayers's buck."

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APPENDIX A
BUSINESS SURVEY

Muscatine Fire Department
Emergency & Prevention Services

The following questions are in regards to the "efficiency" of the Muscatine Fire Department's performances. Please take the time to answer this 2 sided questionnaire and return it in the enclosed envelope as soon as possible to Assistant Fire Chief Steve O'Connor. Thank you for your time and assistance.

1. During the past 12 months, was your facility inspected by the fire department?

_____ Yes
_____ No
_____ Don't Know

2. How would you rate the adequacy of the inspection?

_____ Adequate
_____ Inadequate or under-inspected (please specify)
_____ Too extensive or too petty or particular
_____ Don't know

3. How would you rate the courtesy of the fire fighters/inspectors?

_____ Excellent
_____ Good
_____ Fair
_____ Poor (why?)
_____ Don't know

4. Overall, do you feel the inspections helped improve the fire safety of your establishment?

_____ Yes, quite a bit
_____ Yes, slightly
_____ No apparent help
_____ Don't know

5. How many times in the last 12 months was the fire department called to an emergency (EMS call, fire extinguishment, false alarm, etc.) at your location?

_____None
_____One
_____Two
_____Three or more
_____Don't know

6. How would you rate the speed of the fire department in responding to emergency calls?

_____Excellent
_____Good
_____Fair
_____Poor (why?)
_____Don't know

7. How would you rate the effectiveness and efficiency of the fire department during an emergency?

_____Excellent
_____Good
_____Fair
_____Poor (why?)
_____Don't know

Comments:

APPENDIX B
ELECTED OFFICIALS QUESTIONNAIRE

Fire Department Efficiency Questionnaire

The topic of my third National Fire Academy EFO (Executive Fire Officer) research paper is measuring the efficiency of the Muscatine Fire Department. During my research I found a fire inspection questionnaire in the book How Effective Are Your Community Services? (I have enclosed the results of this recently-taken questionnaire for your information.) I would appreciate it if you would take a few moments and jot down a few sentences by describing what you, a City Councilperson, believe defines efficiency of city departments, and in particular, the fire department. If you believe efficiency can be measured, how would you measure the efficiency of a fire department? Any other comments would be greatly appreciated. Thank you for your time and input.

Defining efficiency:

Measuring efficiency:

(104 questionnaires were randomly sent out to businesses in Muscatine. We received back 77, or a return of 74%. The average return rate is said to be 28%-30%. We are very pleased with this amount of return.)

Muscatine Fire Department
Emergency & Prevention Services

The following questions are in regards to the "efficiency" of the Muscatine Fire Department's performances. Please take the time to answer this 2 sided questionnaire and return it in the enclosed envelope as soon as possible to Assistant Fire Chief Steve O'Connor. Thank you for your time and assistance.

1. During the past 12 months, was your facility inspected by the fire department?

90% Yes
5% No
5% Don't Know

2. How would you rate the adequacy of the inspection?

88% Adequate
0% Inadequate or under-inspected (please specify)
4% Too extensive or too petty or particular
8% Don't know

3. How would you rate the courtesy of the fire fighters/inspectors?

61% Excellent
26% Good
3% Fair
1% Poor (why?) (try to be over polite)
9% Don't know

4. Overall, do you feel the inspections helped improve the fire safety of your establishment?

39% Yes, quite a bit
39% Yes, slightly
11% No apparent help
11% Don't know

5. How many times in the last 12 months was the fire department called to an emergency (EMS call, fire extinguishment, false alarm, etc.) at your location?

<u>69%</u>	None
<u>7%</u>	One
<u>7%</u>	Two
<u>7%</u>	Three or more
<u>10%</u>	Don't know

(The statistics of the next two questions were taken only from those who stated they had had an emergency during the last year.)

6. How would you rate the speed of the fire department in responding to emergency calls?

<u>73%</u>	Excellent
<u>27%</u>	Good
<u>0%</u>	Fair
<u>0%</u>	Poor (why?)
<u>0%</u>	Don't know

7. How would you rate the effectiveness and efficiency of the fire department during an emergency?

<u>87%</u>	Excellent
<u>13%</u>	Good
<u>0%</u>	Fair
<u>0%</u>	Poor (why?)
<u>0%</u>	Don't know

Comments:

...does a great job;...well satisfied with our fire department;...I feel we're in good shape, thanks to you guys;...always been very courteous in all respects;...thank you for your hard work, devotion, and care for others;...inspections are not consistent from year-to-year. I do not find the inspections to be effective because not much about my business is likely to be a fire hazard, we keep our facility in excellent condition;...we have not personally been involved in a fire, but from observation, the fire department does a great job;...our calls were EMS related, the people who responded were knowledgeable, compassionate and professional;...their suggestion for improvement were put in a positive way, trying to help us be safe;...arrive in excellent time, they were very proficient, courteous, and acted in a professional manner;...we have a great fire dept. I appreciate all they do!;...was this necessary?? petty ;...Muscatine is known as having the most rigid fire inspection standards in the state;...very informative, I appreciate the inspections and the people that perform them, thanks;...fight harder to take over the ambulance service, consider offering fire extinguisher classes (some people don't have a clue);...most of the guys who come for inspections are courteous, some are really great and very helpful, a few have been petty and pushy, the latter leave a "bad taste in the mouth";...You guys are great.